

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)
2. (Previously Presented) An apparatus for controlling a relative movement of a cutting blade and a workpiece that are moved relative to each other by a movement device in an operation with a machine tool, said apparatus controlling said relative movement based on a relative position of said cutting blade and an object that is detected by said movement device when said cutting blade and said object are brought into contact with each other as a result of a relative movement of said cutting blade and said object that is made by said movement device, said apparatus comprising:

a checking device that checks if a contact detecting device for detecting contact of said cutting blade and said object is in a normal condition in which said contact detecting device detects said contact when said cutting blade and said object are brought into contact with each other; and

a contact determining device that determines that said cutting blade and said object have been brought into contact with each other, in accordance with an output provided by said contact detecting device.

3. (Currently Amended) A method of detecting contact and separation of a cutting blade with and from an object, based on a change of a state of an electric circuit that is changed depending upon whether said cutting blade is in contact with said object or is separated from said object, said method comprising:

a step of preparing an on-off circuit as said electric circuit, said on-off circuit including at least said cutting blade, said object and a power source, and said cutting blade, said object and said power source being arranged in series to each other;

a step of bringing said cutting blade and said object into contact with each other, while a conductive layer having an electrical conductivity is provided in at least a space between said cutting blade and said object; and

a step of detecting contact and separation of said cutting blade with and from said object, based on a transition from an open state of said on-off circuit to a closed state of said on-off circuit, wherein said on-off circuit is in said open state when said cutting blade is separated from said object, and said on-off circuit is in said closed state when said cutting blade is in contact with said object;

a memorizing step of memorizing, as a contact position, a relative position of said cutting blade and said object upon contact of said cutting edge with said object; and

a movement-controlling step of controlling a relative movement of said cutting blade and a workpiece that is to be cut by said cutting blade, on the basis of said contact position memorized in said memorizing step.

4. (Canceled)

5. (Canceled)

6. (Original) A method according to claim 3, wherein said conductive layer consists of a conductive coating which covers a surface of said cutting blade.

7. (Withdrawn) A method according to claim 3, wherein said conductive layer consists of a conductive coating that covers a contact surface of said object, the contact surface being a surface of said object that is in contact with said cutting blade.

8. (Withdrawn) A method according to claim 7, wherein said object comprises a master workpiece which has a known dimension and which is held by a workpiece holding device that is provided for holding a workpiece to be cut by said cutting blade.

9. (Withdrawn) A method according to claim 3, wherein said conductive layer consists of a conductive sheet that is positioned to be interposed between said cutting blade and said object when said cutting blade and said object are in contact with each other.

10. (Withdrawn) A method according to claim 3, wherein said cutting blade is provided by at least a cutting edge of a rotary cutting tool which is to be rotated about an axis thereof for cutting a workpiece, and an adjacent portion of said rotary cutting tool which portion is adjacent to said cutting edge,

wherein said cutting edge and said adjacent portion is covered with a conductive coating as said conductive layer, and said rotary cutting tool is brought into contact with said object while said rotary cutting tool is being rotated.

11. (Withdrawn) A method according to claim 10, wherein said rotary cutting tool is brought into contact with said object while said rotary cutting tool is being rotated at a velocity substantially equal to that at which said rotary cutting tool is rotated in a cutting operation for cutting said workpiece.

12-21. (Canceled)

22. (Previously Presented) A method according to claim 3, wherein:
said on-off circuit is prepared to further include, in addition to said cutting blade, said object and said power source, a blade holding member holding said cutting blade, and said blade holding member, said cutting blade, said object and said power source being arranged in series to each other, and

said cutting blade and said object are brought into contact with each other, while said conductive layer is provided in a space between said cutting blade and said blade holding member in addition to in said space between said cutting blade and said object.

23. (Currently Amended) A method of detecting contact and separation of a cutting blade held by a blade holding member, with and from an object based on a change of a

state of an electric circuit that is changed depending upon whether said cutting blade is in contact with said object or is separated from said object, said method comprising:

a step of preparing an on-off circuit as said electric circuit, said on-off circuit including said blade holding member, said cutting blade, said object and a power source that are arranged in series to each other,

a step of bringing said cutting blade and said object into contact with each other, while a conductive layer having an electrical conductivity is provided in a space between said cutting blade and said blade holding member, ~~and~~

a step of detecting contact and separation of said cutting blade with and from said object, based on transition from an open state of said on-off circuit to a closed state of said on-off circuit, wherein said on-off circuit is in said open state when said cutting blade is separated from said object, and said on-off circuit is in said closed ~~state~~state when said cutting blade is in contact with said object;

a memorizing step of memorizing, as a contact position, a relative position of said cutting blade and said object upon contact of said cutting edge with said object; and

a movement-controlling step of controlling a relative movement of said cutting blade and a workpiece that is to be cut by said cutting blade, based on said contact position memorized in said memorizing step.

24. (Previously Presented) A method according to claim 23, wherein said conductive layer includes a conductive coating that covers a surface of said cutting blade.

25. (Withdrawn) A method according to claim 23, wherein:

said object includes a master workpiece that has a predetermined dimension, the master workpiece being held by a workpiece holding device that is provided for holding a workpiece to be cut by said cutting blade, and

at least a portion of a surface of said master workpiece is covered with a conductive coating.

26. (Withdrawn) A method according to claim 23, wherein:

said cutting blade is provided by a rotary cutting tool that is to be rotated about an axis of the rotary cutting tool for cutting a workpiece, the rotary cutting tool including a shank portion,

said blade holding member has a shank receiver hole in which said shank portion of said rotary cutting tool is received, and

said conductive layer is interposed between said shank portion of said cutting tool and said shank receiver hole of said blade holding member.

27. (Withdrawn) A method according to claim 26, wherein said rotary cutting tool is brought into contact with said object while said rotary cutting tool is being rotated.

28. (Canceled)